(No Model.) 2 Sheets—Sheet 1.

J. D. TRACY & J. F. PLATT.

STALK OR FODDER CUTTING MACHINE.

No. 576,485. Patented Feb. 2, 1897.

Fig. 1.

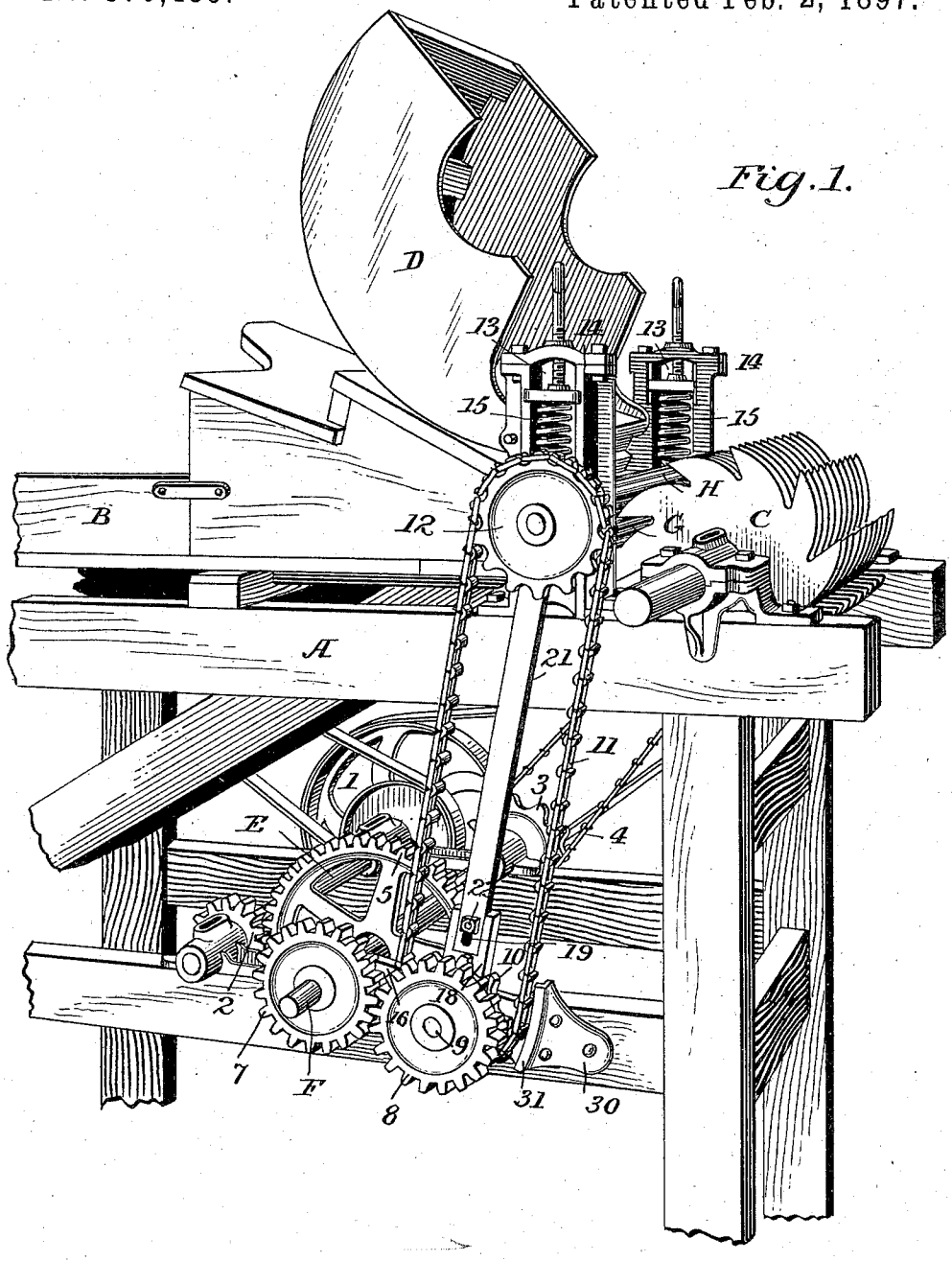

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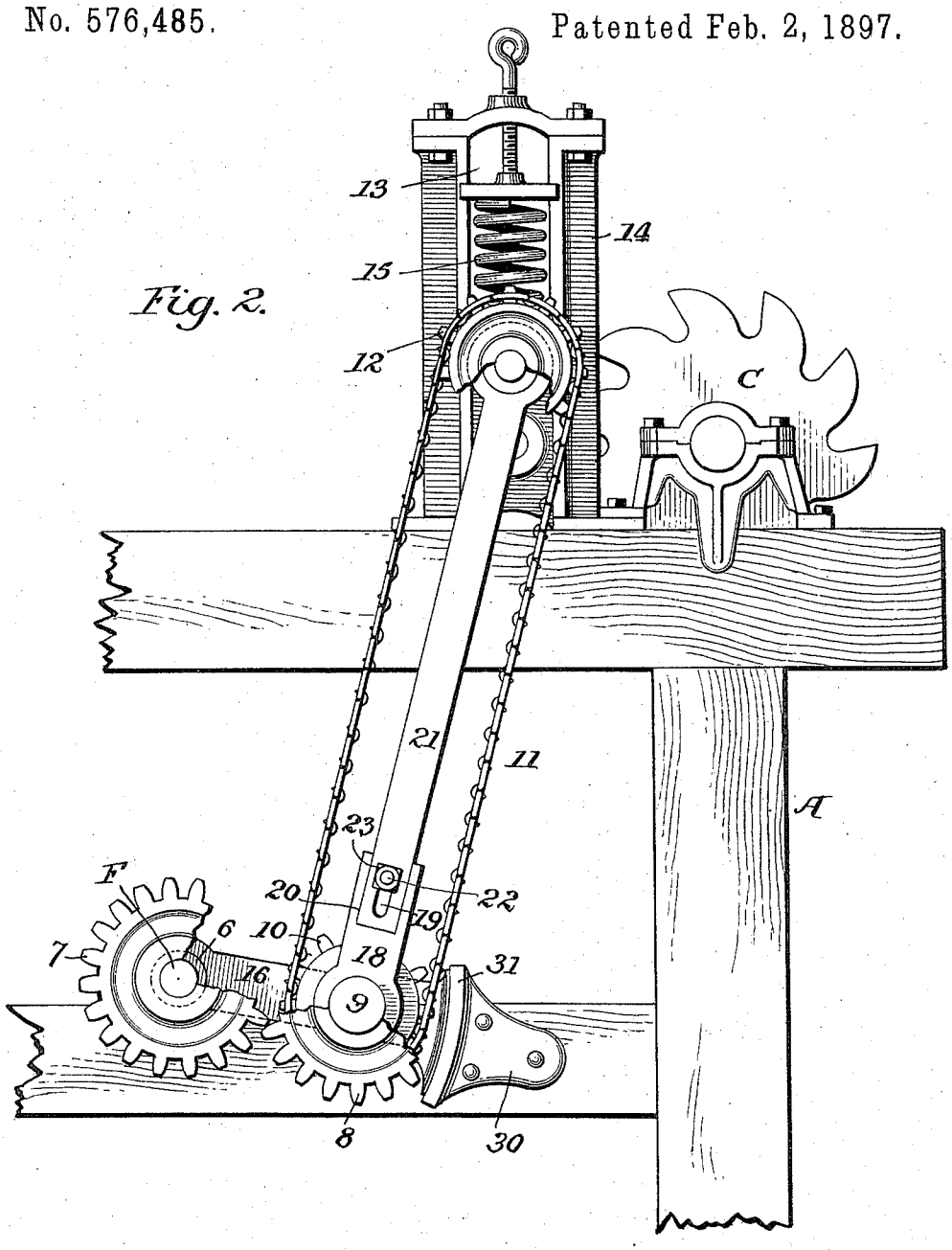
Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN D. TRACY AND JAMES F. PLATT, OF STERLING, ILLINOIS.

STALK OR FODDER CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 576,485, dated February 2, 1897.

Application filed August 20, 1896. Serial No. 603,406. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. TRACY and JAMES F. PLATT, citizens of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Stalk or Fodder Cutting Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in stalk-cutting machines; and it consists, substantially, in such features of construction, arrangement, and combination of parts as will hereinafter be more particularly described.

While being applicable to a great many different forms of cutting-machines, our present invention has reference more particularly to machines for cutting fibrous material, as, for instance, corn stalks and husks for use as fodder for animals.

The particular type of machine on which we prefer to use our invention will be at once recognized from the accompanying drawings.

A desirable feature in these machines is the self raising or adjusting of the upper feed-roll, by which to permit passage of the material operated upon, and one method of doing this has been to use spur-gears on the ends of the shafts of the feed-rolls, the teeth being very deep in order that the movable roll could rise and the engagement of the spur-gearing be still preserved or maintained. More recent improvements dispense with this means of driving the feed-rolls, and the said rolls, like in the machine herein shown, are driven separately by means of suitable shafting and connecting-gear. Even with this form, however, on account of the drive-shaft moving very fast, it was necessary to use a very small sprocket on the upper-roll shaft, which resulted in considerable motion and wear at the joints of the drive-chain, and, besides, the said upper roll could only rise or move in its bearings to the extent permitted by the slack in said chain. It is this and other disadvantages which it is the purpose and object of our present invention to overcome and which we do by the means illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of a cutting-machine embodying our invention; and Fig. 2 is an enlarged view in detail of the driving and adjusting devices, parts being broken away to more clearly indicate the construction and arrangement thereof.

Our improvements are capable of a great many different embodiments in use; but we prefer substantially the form and arrangement of parts such, for instance, as we have herein shown.

A designates the supporting-framework of the machine. B indicates the feed-table, C the cutter-knives, and D a hinged cover for closing down over the said knives as well as the feed-rolls of the machine, these parts being of usual or well-known construction. While different forms of driving mechanism could be employed, we prefer the arrangement herein provided and which comprises a main shaft E, having its bearings in the lower part of the framework A and provided with a band-pulley 1 at one end and a small pinion or gear 2 at or near the other end.

F represents a counter-shaft which is provided at one end with a sprocket-wheel 3, around which passes a sprocket-chain 4, leading to a similar wheel (not shown) on the corresponding end of the shaft of the lower feed-roll G, and the said counter-shaft carries at or near its other end an enlarged gear-wheel 5, which meshes with the gear 2 referred to. This counter-shaft is supported at this end in a box 6, and at its outer end beyond the gear-wheel 5 is a smaller gear-wheel 7, which meshes with a similar gear-wheel 8, carried by a stud 9, and on this stud is also carried a sprocket-wheel 10, over which passes a sprocket-chain 11. The said sprocket-chain passes upward and over a similar sprocket-wheel 12, carried on the corresponding end of the shaft of the upper feed-roll H, which shaft has its bearing at each end in a box that is movable upwardly in a vertical, diagonal, or segmental slot or opening 13 of a roller-bracket 14, and which boxes are each held down by means of a spring 15, by which the upper roll is given a yielding action in operation.

It is evident from the construction and arrangement thus far described that on imparting motion to the main drive-shaft in the direction indicated by the arrow the feed-rolls G and H would be independently operated to revolve in different directions from the same source of power, and in this way the corn stalks and husks would be fed to the cutting-

knives and by these latter be cut up into shreds or lengths suitable for fodder. It will be seen, however, that the upper roll H is incapable of raising any higher than is permitted by the slack in the sprocket-chain, and which distance is sometimes insufficient on account of the large obstruction offered by some of the material; and this construction would also necessitate the use of a belt-tightener to take up the slack in the sprocket-chain whenever the machine was running empty or when produced by wear of the chain. In order, therefore, to secure a uniform equal tension on the sprocket-chain 11 at all times, as well also as to be able to employ much larger sprocket-wheels than heretofore, we provide the construction and arrangement about to be described, and while it is to be understood that we do not limit ourselves thereto strictly as to detail we have found the same to fully and admirably subserve the intended purposes. Thus we mount the stud 9 and the combined gear-wheel 8 and sprocket-wheel 10 at the free end of a pivoted or swinging rocker-arm 16, which in turn is loosely mounted to turn on the hub of the box 6, in which the end of the counter-shaft F rests; also, on the hub of the stud 9 we pivot an upwardly-projecting arm 18, which is preferably grooved at 20, so as to receive adjustably the lower end of a connecting rod or bar 21, having a slot 19, a suitable bolt 22 and nut 23 being employed to secure the rod or bar to the said arm in an obvious manner. The upper end of the said rod 21 connects with the bearing of the upper roll H at this side of the machine, and the purpose of making the rod adjustable lengthwise is to take up the slack in the sprocket-chain 11, however produced.

Our improved construction and arrangement also enable the upper roll to rise to any height required, while at the same time maintaining equal tension on the sprocket-chain, and this is an important feature on machines of this class where the upper feed-roll is constantly changing its position or alinement relatively to the lower feed-roll. By our invention also one end of the upper roll is permitted to get up or rise independently of the other end, which produces much better results, and we are enabled to use sprocket-wheels of the same as well as much larger sizes than heretofore, which produces less wear on the chain at the joints.

In order to maintain the rocker-arm in true working alinement, we provide on the side of the framework a plate 30, which is slightly curved at 31 to correspond to the arc of the circle described in the movement of the arm, and which is bent or set out from the framework at said curved edge, so as to receive the adjacent end or portion of the arm and thus guide the arm in its movements. Of course other means for guiding the arm could be adapted, but we prefer the construction shown.

What we claim is—

1. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a driven gear carried by the arm and meshing with said drive-gear, a rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

2. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a driven gear carried by the arm and meshing with said drive-gear, an adjustable rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

3. In a stalk-cutting machine, the combination with the feed-rolls, one being stationary and the other yieldable, of means for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls, a rocking arm also supported independent of either of the rolls, a curved guide for the free end of the arm, a driven gear carried by the arm and meshing with said drive-gear, a rigid connection between said arm and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

4. In a stalk-cutting machine, the combination with the main shaft for driving the cutter-knives, of the feed-rolls, one of which is stationary and the other yieldable, an auxiliary or counter shaft operated from the main shaft, and connections from said counter-shaft for individually driving the stationary roll, a drive-gear supported in bearings independent of either of the rolls and operated from the counter-shaft, a rocking arm also independent of either of the rolls, and a driven gear carried thereby and meshing with said drive-gear, a rigid connection between said driven gear and the yieldable roll, and independent driving connections for the yieldable roll operated from said driven gear, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN D. TRACY.
JAMES F. PLATT.

Witnesses:
JAMES A. BUYERS,
LENA TUMBLESON.